

Electrified Locks, Relays and Timers

# CX-PS600UL

## POWER SUPPLY / CHARGER

### INSTALLATION INSTRUCTIONS



#### THIS PACKAGE INCLUDES

- 1 - Power Supply Cabinet
- 1 - Instruction Manual
- 2 - 2K2 Resistors
- 2 - Keys

#### 1. GENERAL DESCRIPTION

The CX-PS600UL power supply/charger series delivers a consistent 6-amp supply current at 12/24V DC outputs. Housed in a robust steel enclosure, it can accommodate one or two 12Ah lead acid rechargeable batteries. The Camden CX-PS600UL meets the standards of ULC-S533, UL294, and ULC-60839-11-1. Please note that this power supply is not designed to operate fire notification devices, such as horns, strobes, or bells.

#### 2. SPECIFICATIONS

Input	120/240V AC, 50-60 Hz @ 2.5Amps
Output	6 Amp continuous @ 12/24VDC
Operating Temperature	0 °C to 49 °C
Ripple	50mVp-pmax
Maximum battery charging current	1.5Amps (not part of the max output current rating) 13.8V/27.6V Nominal
Dimensions	13-3/8" W x 17-5/8" H x 4-1/2" D (340mm x 449mm x 115mm)

#### 3. KEY FEATURES

- **Automatic Switch Over:** The unit seamlessly transitions to stand-by battery mode upon AC failure or when voltage drops below 72.5V AC, ensuring uninterrupted functionality.
- **Battery Presence Detection:** Within a brief span of just 10 seconds, the unit can detect if a battery is present.
- **Temperature-Compensated Battery Charger:** Integrated into the system is a charger that adjusts for temperature, optimizing battery life and performance. Important: This feature aligns with EN54-4 standards, but is not UL-evaluated.
- **Battery Charger Monitor and Load Testing:** The unit boasts a robust monitoring system that conducts battery load tests every 48 hours, ensuring the battery's reliability and health.

- **Battery Health Indicators:** Equipped with indicators for battery test results, battery reversal protection, low battery alerts at specific voltages, and a disconnect feature at critical low voltages.
- **Comprehensive Troubleshooting:** Provides extensive reporting for battery and charger issues (details available in the FAULT TABLE).
- **Visual AC Input Indication:** A green LED illuminates when AC input is active, serving as a clear visual cue.
- **AC Fault Relay Contact:** The unit includes a CMOS relay contact, which activates upon AC failures.
- **LED Display:** The enclosure door features a multi-colored LED display, including Green, Yellow, and Blue indicators.
- **DC Output Indication:** A blue LED, located both on the board and the enclosure, signals the DC output status.
- **Protection Measures:** The system ensures the safety of its DC output with built-in overload and short circuit protection mechanisms.
- **Included Accessories:** Every unit comes packaged with the essential battery charging leads.

#### NOTE

This power supply should be installed in compliance with the National Electric Code (NFPA 70) CSAC22.1, Canadian Electric Code, Part 1 and all applicable Local Codes. Installation to be performed by qualified technical personnel.

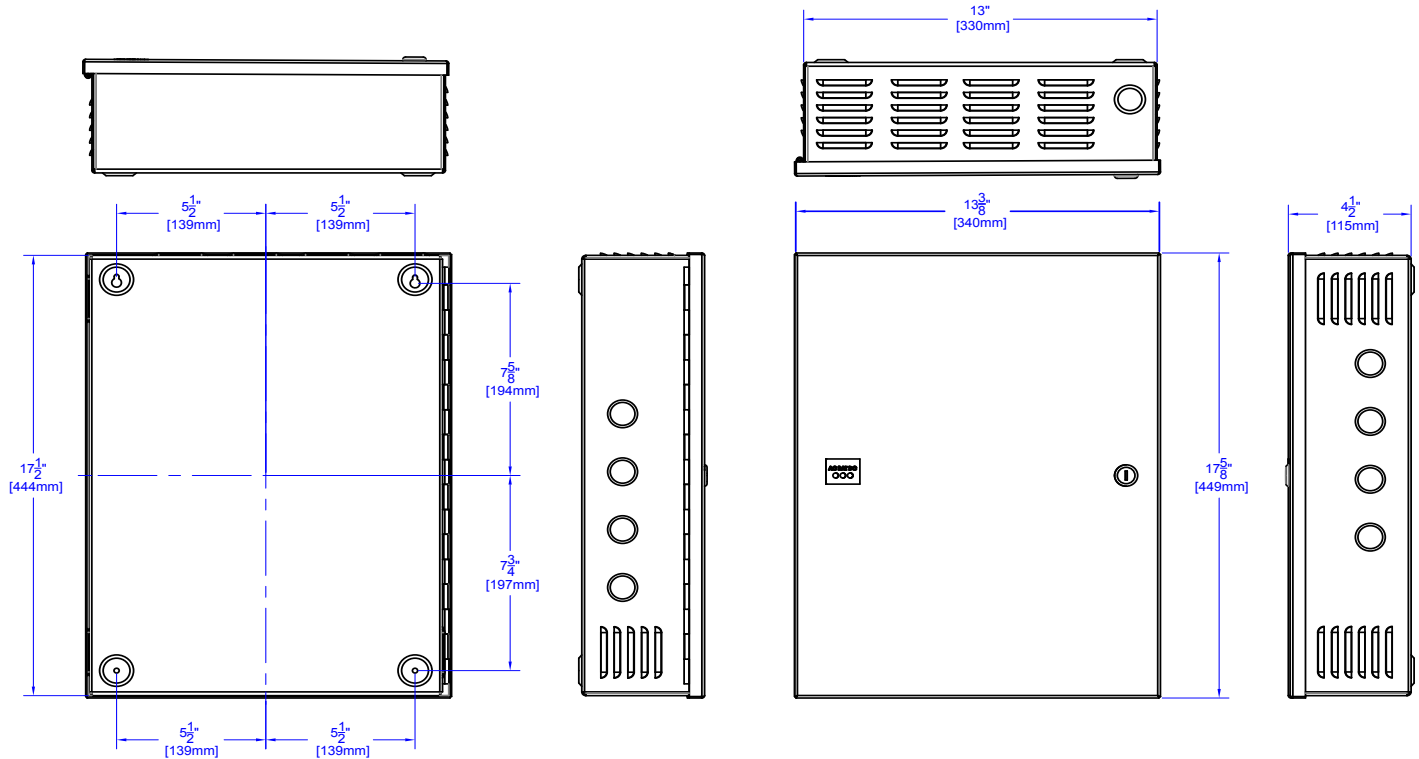
#### UL294 PERFORMANCE LEVEL

Destructive Attack	Level I
Line Security	Level I
Endurance Level	Level IV
Standby Power	Level III (when used with 12Ah/17.2Ah battery)

# CX-PS600UL Power Supply

## INSTALLATION INSTRUCTIONS

### 4. DIMENSIONS



### 5. LED INDICATIONS

LED Color	Function	Indicator Status	Additional Information
<b>Green</b>	AC Power	On when AC power is present	AC fail Relay opens within 60s after AC failure
<b>Blue</b>	DC Power	On when power supply's DC output is active	
<b>Yellow</b>	Battery and Fault	Flashing when the battery is charging	Also used to indicate various fault conditions (See Fault Condition and Indication table)
<b>Red</b>	Test Indicator	On during Battery test or Battery charger failure	Works with Yellow LED to indicate other fault conditions (See Fault Conditions and Indication table)

### 6. RELAY / OUTPUTS

Output	Output Type	Description
AC FAIL	NORMALLY CLOSED OPEN = FAULT	TRIPS WITHIN 60 SEC. AFTER AC FAILS CMOS RELAY RATING: 30V DC, 60 mA, 16 $\Omega$
BATTERY FAIL	NORMALLY CLOSED OPEN = FAULT	BATTERY PROBLEM. CMOS RELAY RATING: 30V DC, 60mA, 16 $\Omega$

## 7. FAULT CONDITION & INDICATIONS

FAULT	LED-G	LED-Y	LED-R	BATT RELAY	AC RELAY	LED-B
Battery Reversed or Not Connected		On		Open		
Battery Low		On		Open		
Battery Disconnected		On		Open		
Battery Test Failed		On	The LED will flash rapidly five times, followed by a single flash every second. This pattern will repeat continuously until the battery is replaced.	Open		
Battery Test is Successful		Off	3 Flashes 1 sec On/Off			
Charger Failed			The LED will exhibit a pattern of ten rapid flashes, followed by a pause of two seconds. This cycle will continue to repeat until the system is functioning properly.	Open		
AC Failed	Off				Open within 60 sec	
DC Failed / Overload						Off

## 8. BATTERY OPERATING VALUES

Parameter	Output	Description
Battery Disconnect Voltage	10/20.2V	The battery will be disconnected if the AC is off and the battery voltage falls below this threshold. Reconnection will occur only once AC power is restored.
Minimum Battery Voltage to Pass Battery Test	11.50V 23.0V	A successful battery test will result in the Red LED flashing on and off every second during the 2-minute test. If the LED emits 5 rapid flashes followed by a 1-second pause, this indicates a battery failure, and the battery should be replaced.
Low Battery Voltage Warning	11.40V 22.80V	Should the output voltage fall below this threshold, a 'Low Voltage Warning' will be triggered. For more details, refer to the Fault Conditions and Indication table.

## 9. INSTALLATION INSTRUCTIONS

This power supply should be installed following the guidelines of the National Electrical Code, NFPA70, the NFPA72 National Fire Alarm Code, CSA C22.1 Safety Standard for Electrical Installations, Canadian Electrical Code Part I, CAN/ULC-S524, as well as all relevant local codes. Installation must be carried out by appropriately qualified personnel. Unless approved by the local jurisdiction authority, the power supply should not be installed in the fail secure mode, and it should not disrupt the function of any listed panic hardware.

**IMPORTANT:** Connect the Mains AC input to either 120/240V AC, following the instructions depicted in the installation diagram. The entry knockouts are located on the left of the enclosure. Ensure to maintain a distance between low voltage wiring and the AC wiring to avoid interference.

## **CX-PS600UL Power Supply**

### **INSTALLATION INSTRUCTIONS**

1. Install the power supply at your chosen location by utilizing the four mounting holes. Please note that this device is intended for indoor use only, within controlled environments. Avoid installing the power supply on exterior doors.
2. With the main power switched off, attach the LEDs to the AC input terminal block, being mindful of the wiring phase and polarity: Ground/Earth = Green(or Yellow), Neutral = Blue (or White), Live = Black (or Brown). This device must be linked to the 120-240 Volt Mains via an easily accessible external disconnect device, complete with a maximum 15 Amp branch protection. Select the desired DC output voltage of either 12V or 24V using the SW1 jumper. When SW1 is in the ON position, the output is 12V DC; when SW1 is OFF, it's 24V DC.
3. Refrain from connecting the battery at this stage.
4. Once the AC power supply is switched on, the Green LED should light up, indicating the presence of AC, and the AC Fault Relay will be activated as "ON" (or closed). When the AC power is switched off, the AC Fault Relay will open within a factory-set time of 60 seconds, triggering the CMOS "AC Fail" output. Connect this output to the appropriate monitoring devices.
5. Check the DC output voltage, which should read either a maximum of 13.20V DC or 26.40V DC. A blue DC LED will illuminate to confirm that the DC output is functioning correctly.
6. The Yellow LED, in conjunction with the BAT FAULT CMOS relay opening, will only light up to signal that the Battery is either not connected or connected with reversed polarity.
7. When ready, connect the Battery or Batteries, ensuring correct polarity. Note: Do not connect the battery unless the AC power is already present.
8. If the battery is connected correctly, the Yellow LED will switch off (refer to the Fault Conditions and Indications Table for further information). Within a minute, the Battery Fault Relay will reset, and the Yellow LED will flash once every two seconds.
9. If the battery is connected with reversed polarity, the Yellow LED will stay lit (see the Fault Table). The CMOS relay will open to indicate a Battery Fault, and this output should be connected to suitable monitoring devices.
10. Attach the devices to be powered to the output terminals marked "Vo- Vo+".
11. Refer to Figures 1 & 2 below for the installation of PD4ECB, PD8ECB, MOM8ECB, and ACM4ECB, which require two EOLR Resistors (2K2) that are provided.
12. If a Tamper Switch is required, use part # TSW1-02 or TWS2-02 (refer to Figure 3).
13. Use 2K2 EOLR (End Of Line Resistor) Part #EORL-PWX2K2.
14. Link the fault relays to FACP or ACP for trouble indication.
15. Finally, secure the enclosure using the provided screw or the Key Lock, if available.

## **10. ACM4ECB**

### **DESCRIPTION:**

The ACM4ECB is a distribution controller designed for use with card Access Control and Egress Doors. It offers 12/24V DC across four outputs, each rated at 2.0A (maximum of 3A total), each equipped with electronic over-current protection set at 2.5A. The four outputs can switch security devices such as Magnetic Locks and Door Strikes on or off. The device can be connected to FACP or ACP through NO or NC configurable contact input using 2K2 EOLR (Part #EORL-PWX2K2), and features an input for Reverse Polarity triggering. The ACM4ECB also incorporates two Dry Contact "Form C" relay outputs, one indicating output status and the other signaling DC failure on any of the four outputs due to overcurrent or short-circuit situations.

### **INSTALLATION:**

#### **1. Output Connections**

ACM4ECB offers four selectable outputs suitable for both FAIL safe and FAIL secure configurations.

a) For FAIL safe operation, connect the positive (+) lead of the device to the Normally Closed (NC) terminal and the negative lead to the "Neg" COM terminal, connectors CN1 to CN4. DC power will be present under normal circumstances and will switch OFF when a fire alarm from FACP, ACP, or Reverse Polarity input is activated. Devices such as Magnetic Locks should be connected to this output as depicted in Fig. 2.

b) For FAIL secure operation, connect the positive (+) lead to the Normally Open (NO) terminal. Under normal conditions, DC power will not be present but will switch ON when a fire alarm or Reverse Polarity input from FACP or ACP is activated. Devices such as Door Strikes should be connected to this output.

#### **2. Fire Alarm and Access Control Interface**

Use the Normally Open (NO), Normally Closed (NC), or Reverse Polarity (Rev. Volt.) inputs to trigger ACM4ECB operation. Connect the positive (+) and negative (-) leads from the FACP or ACP to the REV. VOLT terminals, observing polarity (which is referenced during alarm conditions), or connect the NO or NC from FACP or ACP output to the "Fire Trigger" terminals. Install the PWX2K2 2k2 (EOLR) resistor at the FACP or ACP as shown in Fig. 1.

Note: EOLR is not required on Rev. Pol.

#### **3. Engineering RESET/REX Input**

With the Jumper JL removed (JL OFF), the ACM4ECB will latch upon receiving input from the FACP or ACP, and will reset when the FIRE/ACP TRIGGER

is reset. If **JL is ON**, the unit will follow the FIRE/ACP TRIGGER. Install PWX2K2 2.2K (EOLR) resistor at the Key Switch or Push Button to execute this operation.

**4. Relay Output**

a) DC Fail: If one or more of the eight outputs fail due to overcurrent or short circuit, the DC Fail Relay will open. Connect this output to a monitoring device. (28V DC, 300mA)

b) Status Output: The dry contact Relay Form “C” will change state (de-energize) when the FACP or ACP input activates. Connect this output to a monitoring device. (28V DC, 300mA)

**5. Cascade Connection**

To seamlessly integrate multiple ACM8ECB units, begin by connecting the ‘Status Output’ relay C and NC terminals from the first unit directly to the ‘REMOTE RESET/REX INPUT’ of the subsequent unit — a procedure unaffected by polarity. Subsequently, it’s crucial to remove the JR from the first unit and fix an EOLR (2K2) onto the ‘Fire Trigger’ terminal of the second unit. If the integration extends to a third unit or beyond, ensure the removal of the JR from the preceding unit for each additional setup. For a visual aid of these configurations, refer to Fig.1. For those employing the Latch Mode, it’s vital to note that only the JL jumper from the primary unit needs removal. In such a setup, the first unit remains the epicenter for initiating all engineering reset operations.

**6. ACM4ECB LED Indication**

The Red LEDs (L1 to L4) indicate DC presence (when ON) and that the Output relays are energized. When OFF, the LEDs indicate that the Relay is de-energized and the output is OFF. Yellow LEDs (LD1 to LD4) signal overload or short on the output, with the output current limit set at 2.5Amp (rated at max 2.0Amp). The Green LED (L9) is normally OFF, but switches ON when an alarm is received from FACP/ACP, staying ON as long as the FACP/ACP input status remains unchanged. If JL was removed, this LED stays ON until a manual RESET circuit reset.

**7. Access Control Panel (ACP) Trigger input**

The controller offers four inputs split between CN10 and CN11, each with two IN and two GND terminals. Activate these inputs by shorting the IN and GND terminals of the respective inputs.

**8. FACP/ACP Input Programming**

If you want the output relay activation to follow the FACP or ACP input, set the DIP switch corresponding to the desired relay to the “OFF” position. In the “ON” position, the corresponding output relay will not be affected by FACP, ACP, or Rev. Pol input.

**9. Isolated Output Configuration**

If any of the outputs require an isolated DRY CONTACT configuration, remove the respective Jumper (J1 through J4). This provides Form “C” (C NO NC) connections to connectors CN1 through CN4, isolating them from the internal power source. The Relay Rating is 28V DC, 2A.

**11. CONNECTION**

Jumper	Default	Fire Input Triggered/Reset	Reset	Reset after AC Mains Lost/Restored
JL OFF & U1 JP OFF		Drops Power	Manual	Auto
JL ON & U1 LP ON	YES	Drops Power	Auto	Manual
JL OFF & U1 JP ON		Drops Power	Manual	Manual
JL ON & U1 JP OFF		Drops Power	Auto	Auto

There are two jumpers (JL & U1 JP) that set the configuration for how the output power functions when the fire input is triggered then restored or when the AC MAINS is dropped and then restored.

**Note:** Jumper U1 JP when used will be placed over the middle and left pins. When not in use will just be covering the right-most pin as a place holder.

**Jumper JL ON or OFF** will control if the output will be restored automatically or manually when the fire input has been triggered (closed) then opened.

**Jumper U1 JP** will control if the output will be restored automatically or manually when the Mains power has been dropped and restored.

See the table above for what your application requires.

# CX-PS600UL Power Supply

## INSTALLATION INSTRUCTIONS

### CX-PS600UL

REGULATED POWER SUPPLY CHARGER  
 UL/ULC LISTED AS FOLLOWS:  
 UL294, CAN/ULC60839-11-1, CAN/ULC-5533  
 POWER SUPPLY FOR ACCESS CONTROL SYSTEM

### FIRE PROTECTIVE

This Product must be installed in compliance with National Electrical Code/NFPA70, and all applicable codes. CSA C22.1, Safety Standard for Electrical Installations, Canadian Electrical Code.



DATE OF MFG

NOTE: PLEASE REFER TO CX-PS300UL INSTALLATION MANUAL, PART NO:40-82B303



I.T.E. POWER SUPPLY  
 E220695



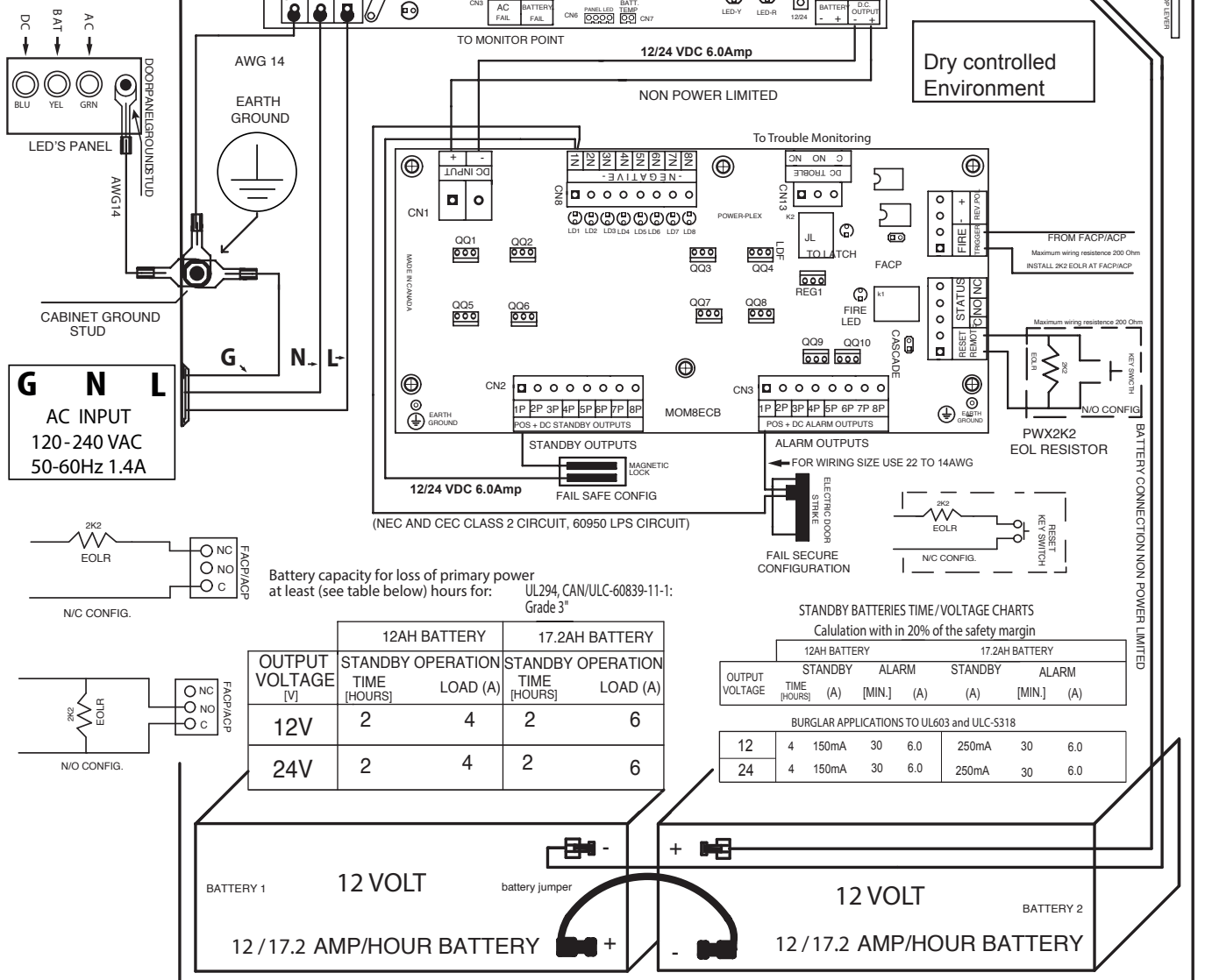
REG# T1880468-02



REG# T1880468-01



REG# T1880471-03



Battery capacity for loss of primary power at least (see table below) hours for: UL294, CAN/ULC-60839-11-1: Grade 3"

OUTPUT VOLTAGE [V]	12AH BATTERY		17.2AH BATTERY	
	STANDBY OPERATION TIME [HOURS]	LOAD (A)	STANDBY OPERATION TIME [HOURS]	LOAD (A)
12V	2	4	2	6
24V	2	4	2	6

STANDBY BATTERIES TIME/VOLTAGE CHARTS  
 Calculation with in 20% of the safety margin

OUTPUT VOLTAGE	12AH BATTERY		17.2AH BATTERY	
	STANDBY TIME [HOURS]	ALARM [MIN.]	STANDBY TIME [HOURS]	ALARM [MIN.]
12	4	150mA	30	6.0
24	4	150mA	30	6.0

BURGLAR APPLICATIONS TO UL603 and ULC-5318

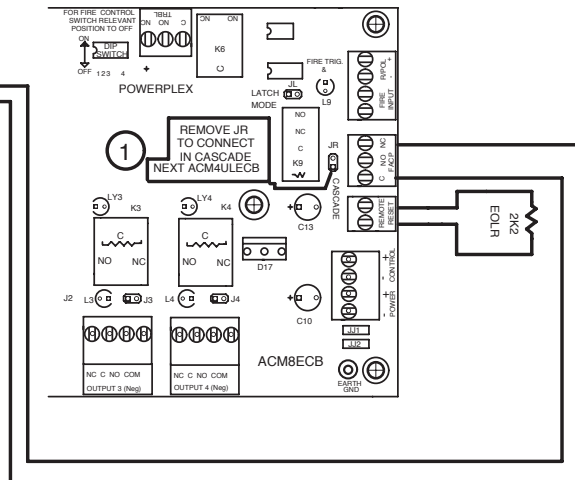
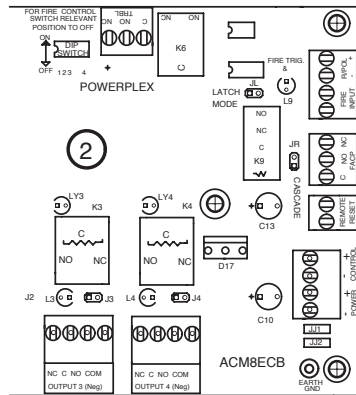
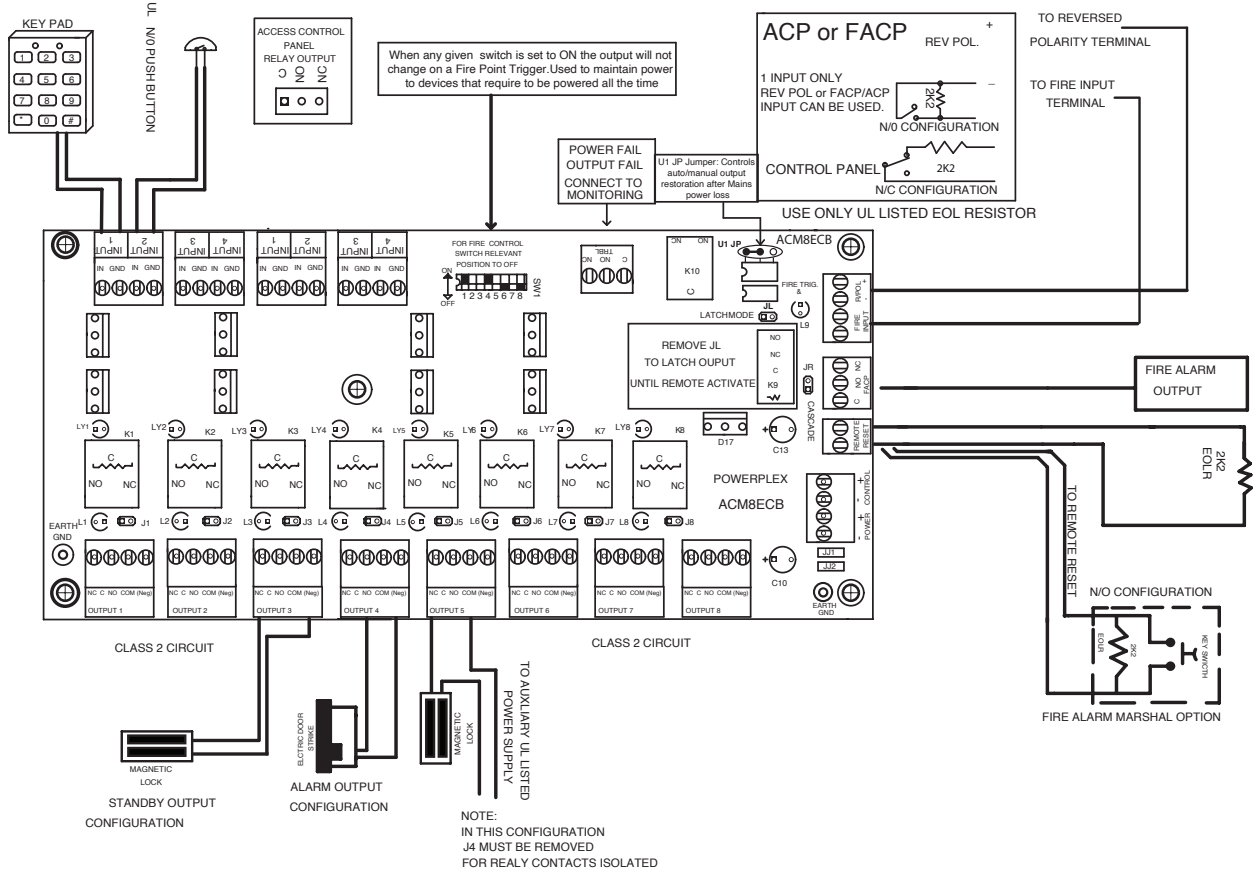
OUTPUT VOLTAGE	12AH BATTERY		17.2AH BATTERY	
	STANDBY TIME [HOURS]	ALARM [MIN.]	STANDBY TIME [HOURS]	ALARM [MIN.]
12	4	150mA	30	6.0
24	4	150mA	30	6.0

Maintain a minimum distance of 0.25 inches between power-limited and non-power-limited wiring to prevent electrical interference.



# TYPICAL SUGGESTED APPLICATION WIRING DIAGRAM

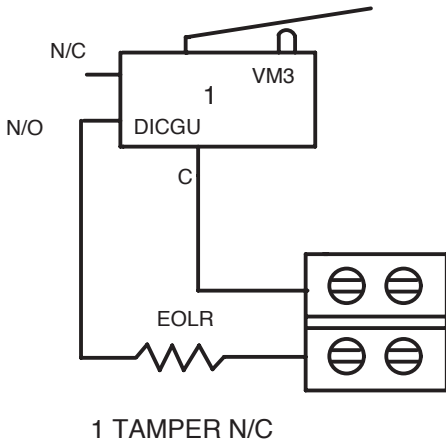
2 OR MORE CX-PS600UL ACM8ECB CONNECTED IN CASCADE



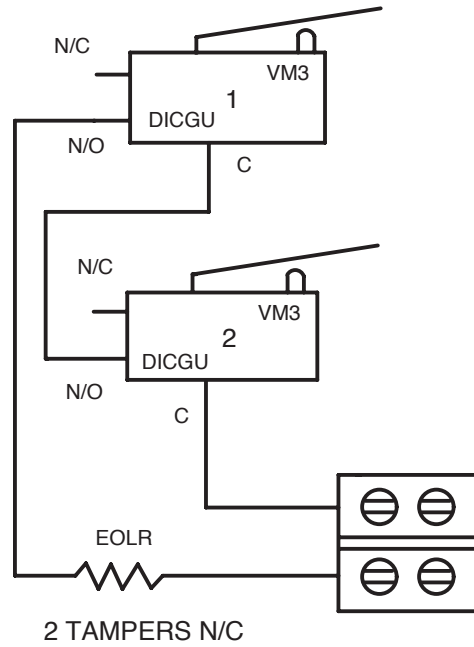
KEEP POWER LIMITED WIRING AT 0.25" MINIMUM SPACING

FIG 2

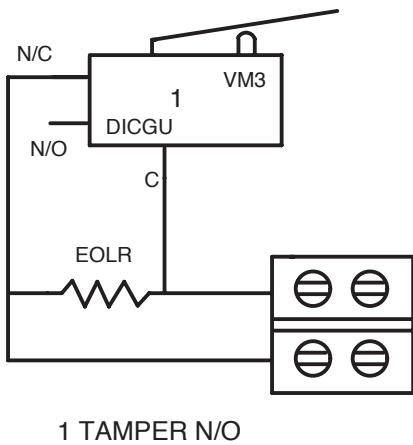
**CX-PS600UL Power Supply**  
**INSTALLATION INSTRUCTIONS**



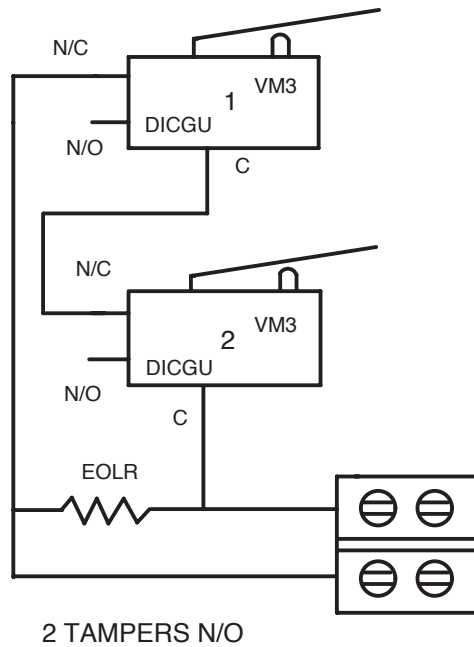
CONNECT TO MONITORING POINT



CONNECT TO MONITORING POINT



CONNECT TO MONITORING POINT



CONNECT TO MONITORING POINT